

Flexible Low Cost Avionics for NanoSatellite Launch Vehicle Control and GPS Metric Tracking, Phase I

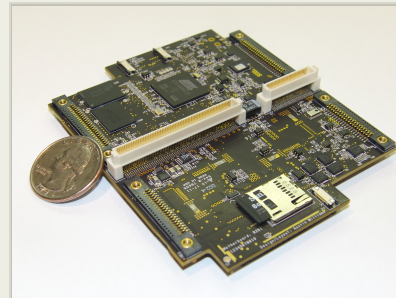
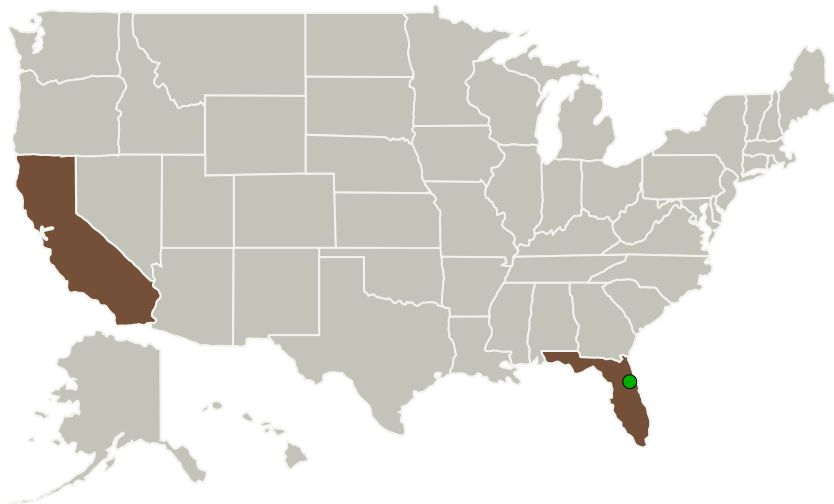
Completed Technology Project (2013 - 2013)



Project Introduction

In this proposal, Tyvak Nano-Satellite Systems LLC (Tyvak) will develop nano-launch vehicle avionics solutions based on the latest commercial electronics products and protocols. These systems will address the unique avionic challenges of dedicated NanoSatellite launch vehicles (NLV). Tyvak will utilize its heritage and lessons learned from its CubeSat avionic systems to modify and optimize its current products for use with this new class of launch vehicles. The major technical objectives will be: - Provide compatibility with the all NLV systems in development - Determine and provide appropriate performance and reliability metrics while maintaining the low-cost/low-mass made possible by commercial electronics systems - Determine the feasibility of the latest network protocols (in particular wireless systems) in the NLV environment - Demonstrate the reliability of low-cost/low-mass/low-power GPS based automatic flight termination system (AFTS) by combining the latest generation of commercial miniature GPS systems with high performance computer systems based on mobile computer technology

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Tyvak Nano-Satellite Systems Inc.	Lead Organization	Industry	Irvine, California
 Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

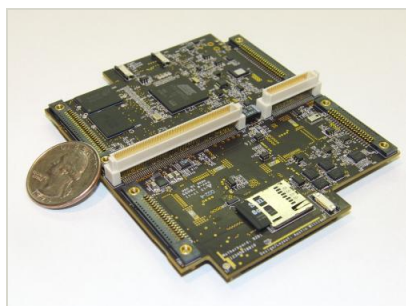
Primary U.S. Work Locations	
California	Florida

Project Transitions

**May 2013:** Project Start**November 2013:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140698>)

Images

**Project Image**

Flexible Low Cost Avionics for NanoSatellite Launch Vehicle Control and GPS Metric Tracking
(<https://techport.nasa.gov/image/136287>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Tyvak Nano-Satellite Systems Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

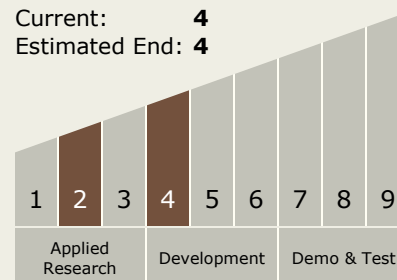
Carlos Torrez

Principal Investigator:

Roland Coelho

Technology Maturity (TRL)

Start: 2
Current: 4
Estimated End: 4



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.3 Flexible Material Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System